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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/360,453	07/26/1999	HIROSHI SUGITANI	35.G1250DIV.	4210

5514 7590 03/17/2004

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30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

TUGBANG, ANTHONY D

ART UNIT	PAPER NUMBER
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3729

DATE MAILED: 03/17/2004

21

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/360,453

Applicant(s)

SUGITANI ET AL.

Examiner

A. Dexter Tugbang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 08/281,006.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. The applicant(s) amendment filed 1/5/04 has been fully considered and made of record.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugitani 4,412,224.

Sugitani discloses a method of manufacturing an ink jet head comprising: providing a plurality of recessed portions (recessed areas of dielectric thin film 3 on either side of heating elements 2 in Fig. 1) in a surface on a substrate 1 such that the recessed portions have a bottom surface located at a position that is lower than a position of a heat acting surface (top surface areas of dielectric thin film 3 directly above heating elements 2 in Fig. 1); and fitting the recessed portions to flow passage walls 7 of a ceiling member 9 by applying a force to the ceiling member along a direction in which the energy generating elements 2 are arranged, thereby aligning the flow passages 7 with the energy generating elements (see Fig. 8 and col. 3, lines 15+), which meets all of the limitations of the claimed manufacturing method.

Regarding Claim 8, Sugitani further teaches providing a raised convex portion of material (conductive film 4 in Fig. 2) on a surface of the substrate 1 at an end portion thereof, where an area of the ceiling member 9 does not make direct contact with the convex portion (see Fig. 8).

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Regarding Claim 9, Sugitani further teaches providing the ceiling member 9 with a dummy nozzle portion 11 (in Fig. 9).

Regarding Claim 10, the claimed "convex portion" is read as the adhesive additive of an epoxy discussed by Sugitani at col. 3, lines 21-24.

Claim Rejections - 35 USC § 103

4. Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugitani in view of Wiech 4,722,824.

Sugitani teaches the claimed manufacturing method as relied upon above. It is noted that Sugitani satisfies the limitations of dependent Claims 12-14 inasmuch as these limitations are the exact same as dependent Claims 8-10, respectively.

Regarding Claims 11-14, Sugitani teaches substantially all of the limitations of the claimed manufacturing method except vibrating the substrate.

Wiech teaches an assembly process including a substrate 3 which is bonded to a ceiling member 1 having preformed wall portions 5 attached to the ceiling member and where these wall portions are attached to recessed portions 9 (see Fig. 1). Wiech teaches that his assembly process vibrates the substrate 3 (see col. 2, lines 5-10) to bond and assemble all of the above together for the benefits of bonding and assembling members together of different shapes having complex geometries for a more economical manufacturing process (see col. 1, lines 36-42).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of Sugitani by vibrating the substrate, as taught by the

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assembly process of Wiech, to positively provide a more economical manufacturing process of assembling an ink jet head.

Regarding Claim 15, it would have been an obvious matter of design choice to choose any desired amplitude of vibrations since applicants have not disclosed that the claimed amplitude having a depth smaller than one of the recessed portions, solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the amplitude of vibrations taught by Wiech.

Response to Arguments

5. Applicant's arguments filed 1/5/04 (Paper No. 20) have been fully considered but they have not been deemed to be found as persuasive.

In regards to the merits of Sugitani as best understood by the examiner, it appears that the applicants' believe that Sugitani does not teach the limitations of "fitting...elements" (last 4 lines of Claim 7 and last 5 lines of Claim 11) as discussed in the last response (filed 1/5/04, pages 7-8).

The examiner traverses to the extent that the ceiling member is read as plate 9 of Sugitani, which includes a number of flow passage walls 7 that are integrally attached to the ceiling member 9. The recessed portions are read as the recessed portions of dielectric film 3 (in Fig. 1) and from the sequence of Figures 5-8, the assembly of the recessed portions (in dielectric film 3) are fitted to the flow passage walls 7 of the ceiling member 9 by applying an inherent applied force to the ceiling member (see sequence of Figs. 7-8) along at least a direction in which the energy generating elements 2 are arranged in alignment with the flow passages. This

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alignment of the flow passages being directly above the energy generating elements is what is considered to be the final resulting structure shown in Figure 8. The inherent force applied by the ceiling member 9 to the flow passage walls 7 is what serves to both align and fit the flow passage walls 7 to the recessed portions (of dielectric film 3), otherwise the ink jet head of Sugitani would not even work or function. Although, the ceiling member 9 is bonded to the flow passage walls 7 after the passage walls 7 are fixed, the ceiling member 9 is assembled to the recessed portions (of dielectric film 3) via the flow passage walls 7 by an applied force to the extent that the final resulting structure of the ink jet head is aligned.

It is noted that at least with respect to Claims 7 and 11, only two steps of "providing..." and "fitting..." are required and any interconnection as to when the claimed "ceiling member" is fitted is not recited in the claims. In other words, the claimed "ceiling member" recited in the preamble of each claim does not further limit the body of the claims as to what order the ceiling member must be bonded in relationship to when the flow passage walls are bonded.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The aspect of "vibrating" was relied upon in Wiech, as Wiech solves the problems of assembling or bonding with a substrate that is vibrated. Accordingly, Sugitani fully satisfies the limitations of at least Claim 7 and the combination of Wiech with Sugitani fully satisfies the limitations of at least Claim 11.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

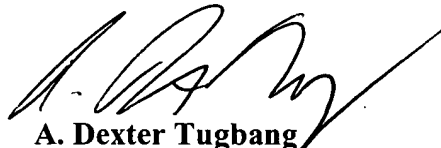
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 703-308-7599. The examiner can normally be reached on Monday - Friday 7:00 am - 3:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



A. Dexter Tugbang
Primary Examiner
Art Unit 3729

March 15, 2004